

A dry processing apparatus includes a processing chamber provided with a measurement window having a reflection portion which totally reflects light on the side of an inner surface thereof and a transmission portion. When a layer is not deposited, measurement light is irradiated so that the light is totally reflected by the reflection portion. A deviation between the measurement light reflected by a surface of the deposited layer and the measurement light reflected by the reflection portion is measured to determine a thickness of the deposited layer. A quantity of light reflected by the surface of the deposited layer is compared with the light quantity in case where irregularities are not formed in the surface of the deposited layer to evaluate a state of irregularities of the surface. The thickness of the deposited layer and a state of the surface of the layer are monitored separately.